

What is claimed is:

1. An image forming apparatus comprising:  
an image carrier rotatable in a predetermined rotative direction;  
a charging unit for charging a surface of the image carrier;  
a precharging device disposed upstream from the charging unit with respect to the predetermined rotative direction of the image carrier for precharging the surface of the image carrier;  
and  
a voltage supply unit for supplying a voltage to the precharging device.
2. An image forming apparatus according to claim 1, in which an expression of  $|V_0| - |V_a| \leq 100 \text{ V}$  is satisfied, where  $V_0$  is a potential of the surface of the image carrier after the image carrier is charged by the charging unit and  $V_a$  is a potential of the surface of the image carrier after the image carrier is precharged by the precharging device.
3. An image forming apparatus according to claim 1, in which an expression of  $50 \text{ V} \leq |V_0| - |V_a| \leq 100 \text{ V}$  is satisfied, where  $V_0$  is a potential of the surface of the image carrier after the image carrier is charged by the charging unit and  $V_a$  is a potential of the surface of the image carrier after the image carrier is precharged by the precharging device..
4. An image forming apparatus according to claim 1, in which the precharging device includes a semiconductive member having resistivity between  $10^6 \text{ } \Omega\text{cm}$  and  $10^{10} \text{ } \Omega\text{cm}$ .
5. An image forming apparatus according to claim 1, in which, the precharging device has cleaning capability of scraping

residual toner off the surface of the image carrier.

6. An image forming apparatus according to claim 5, in which the precharging device includes:

a conductive holder disposed in the vicinity of the surface of the image carrier, the conductive holder extending substantially in parallel with a rotation axis of the image carrier; and

a cleaning blade made of semiconductive rubber and held in the conductive holder such that an end portion of the cleaning blade is in contact with the surface of the image carrier, the voltage supply unit applying the cleaning blade with a predetermined voltage.

7. An image forming apparatus according to claim 5, in which the precharging device includes:

a conductive holder disposed in the vicinity of the surface of the image carrier, the conductive holder extending substantially in parallel with a rotation axis of the image carrier;

a cleaning blade made of rubber and held in the conductive holder such that an end portion of the cleaning blade is in contact with the surface of the image carrier; and

a semiconductive resin member provided on a surface of the cleaning blade so as to extend from the conductive holder to the end portion of the cleaning blade, the voltage supply unit applying the semiconductive resin member with a predetermined voltage.

8. An image forming apparatus according to claim 5, in which the precharging device includes:

a conductive holder disposed in the vicinity of the surface of the image carrier, the conductive holder extending substantially in parallel with a rotation axis of the image

carrier;

a cleaning blade made of rubber and held in the conductive holder such that an end portion of the cleaning blade is in contact with the surface of the image carrier; and

a semiconductive rubber layer formed on a surface of the cleaning blade so as to extend from the conductive holder to the end portion of the cleaning blade, the voltage supply unit applying the semiconductive rubber layer with a predetermined voltage.

9. An image forming apparatus according to claim 1, further comprising a cleaning unit disposed upstream from the charging unit with respect to the predetermined rotative direction of the image carrier for scraping residual toner off the surface of the image carrier, the precharging device being disposed upstream from the cleaning unit.

10. An image forming apparatus according to claim 9, further comprising a toner receiver for receiving toner scraped down by the cleaning unit, the precharging device comprising a semiconductive resin member supported by the toner receiver through an elastic member and applied with a predetermined voltage by the voltage supply unit.

11. An image forming apparatus according to claim 9, further comprising a toner receiver for receiving toner scraped down by the cleaning unit, the precharging device including a semiconductive resin member disposed within the toner receiver and applied with a predetermined voltage by the voltage supply unit.

12. An image forming apparatus according to claim 11, in which the precharging device comprises, as the semiconductive resin member, a brush roller applied with the predetermined voltage

by the voltage supply unit, the brush roller including:

a rotatable conductive shaft extending substantially in parallel with a rotation axis of the image carrier; and

a plurality of semiconductive fibers extending from the conductive shaft radially such that tips of the semiconductive fibers are capable of being in contact with the surface of the image carrier.

13. An image forming apparatus according to claim 1, further comprising cleaning unit disposed upstream from the charging unit with respect to the predetermined rotative direction of the image carrier for scraping residual toner off the surface of the image carrier, the precharging device being disposed downstream from the cleaning unit.

14. An image forming apparatus according to claim 13, in which the precharging device includes a semiconductive resin member supported by the cleaning unit through an elastic member and applied with a predetermined voltage by the voltage supply unit.

15. An image forming apparatus according to claim 1, in which the precharging device includes a semiconductive member disposed in the vicinity of image carrier so as to extend substantially in parallel with a rotation axis of the image carrier and oppose to the surface of the image carrier keeping a predetermined distance from the surface.

16. An image forming apparatus according to claim 15, in which the semiconductive member comprises a semiconductive plate covered with a semiconductive resin.

17. An image forming apparatus according to claim 15, in which the predetermined distance is between 20  $\mu\text{m}$  and 70  $\mu\text{m}$ .

18. An image forming apparatus according to claim 15, in which the semiconductive member of the precharging device is provided with a spacing member to be in contact with the surface of the image carrier at each of corners of an end portion of the semiconductive member in order to leave a clearance of the predetermined distance between the semiconductive member and the surface of the image carrier when the end portion of the semiconductive member is urged towards the surface of the image carrier.

19. An image forming apparatus according to claim 18, in which the spacing member is an insulation film.